TECHNICAL UNIVERSITY OF MOMBASA

FACULTY OF PURE AND HEALTH SCIENCE

UNIVERSITY EXAMINATION FOR:

ANALITICAL CHEMISTRY

AAB 4101: FUNDAMENTALS OF BIOLOGY

END OF SEMESTER EXAMINATION

SERIES:DECEMBER2016

TIME:2HOURS

DATE: Pick DateDec2016

Instructions to Candidates

You should have the following for this examination

-Answer Booklet, examination pass and student ID

This paper consists of **FIVE** Questions. Attemptquestion ONE (Compulsory) and any other TWO questions.

Do not write on the question paper.

Answer question ONE(compulsory) and any other TWO questions

QUESTION ONE

a) (i) Describe biological fluorescent stains used in microscopy 8mks.

(ii) Describe the role of enzymes found inside the nucleus of every cell. 5mks

b)(i) Explain selectins as cell junctions in human 4mks

(ii) Explain the chemical reactions that take place during light dependent photosynthesis 7mks.

c)(i) Describe movement of substances into and out of the cell through primary active transport 4mks

(ii) Name any two oxygen reservoirs 2mks

QUESTION TWO

a)(i) State the components of ribosomes using chemical analysis context 4mks

(ii) Explain the factors that affect the rate of diffusion 6mks

b)(i) Name the ocular lenses of a microscope and their functions in an optical microscope 3 mks

(ii) Identify three major parts of the cell which influence cytochemical reactions 3mks

QUESTION THREE

a)(i) Discuss the chemical composition of carbohydrates that enhance them as a source of energy 7mks

(ii) Define Z-scheme as it occurs during photosynthesis 1mk

(iii) Describe CAM photosynthesis and the plants involved 5mks

b(i) Define cellular respiration 1mk

(ii)Explain the reactions that take place during citric acid cycle of aerobic respiration 6mks

QUESTION FOUR

a)(i) Describe the various categories of food webs 6mks

(ii) Discuss the effects of too much carbon in the oceanic environment 5mks

b)(i) Describe the working principles of an electron microscope 6marks

(ii) Differentiate between cytoplasm and cytosol 2mks
(iii) What is the importance of immersion oil in microscopy? 1mk

QUESTION FIVE

a) (i) Distinguish between simple and compound microscope. 2mks

(ii) Describe Immunoglobulin superfamily 7mks

b)(i) Explain what would happen when yeast cells are subjected to anaerobic conditions for several minutes. 4mks

(ii) Name the major branches of microscopy 3mks

c)(i) Nucleic acids are the polymers made up of nucleotides. Identify the compounds that form a nucleotide. 3mks